



## Curriculum Vitae

Personal information **Maria Esperanza Herreros Avila**

### Work experience

---

1. Employer: Spanish Medicines and Medical Devices Agency (AEMPS)
  - Start date: 042022
  - End date:
  - Position: Scientific Assessor of Immunological and Biological Veterinary Medicines
  - Activities: Scientific assessment of immunological, biological medicines and novel therapies.
  - Country: Spain
2. Employer: Medicines for Malaria Venture and Others
  - Start date: 012018
  - End date: 042022
  - Position: Senior Scientific Consultant
  - Activities: Provide expert advice on the development of preclinical assays and test\_platforms to determine the efficacy of new antimalarial agents.
  - Country: Switzerland
3. Employer: GlaxoSmithkline R&D
  - Start date: 012002
  - End date: 122017
  - Position: Project Leader. Biology Manager
  - Activities: Responsible for providing scientific and strategic leadership in preclinical and early clinical development in partnership with international organizations such as the Bill and Melinda Gates Foundation, Medicines for Malaria Venture and Wellcome Trust.
  - Country: Spain
4. Employer: Glaxo S.A./Glaxo Welcome S.A.
  - Start date: 071996
  - End date: 012002
  - Position: Head of Experimental Microbiology and Cell Biology. Biosafety manager
  - Activities: Responsible for the development of novel assays to determine the efficacy and safety of new antibacterial, antifungal and antimalarial agents. Design, implementation and supervision of BSL2, BSL3 labs and insectaries. Biosafety manager and member of the GSK Biosafety Committee
  - Country: Spain

### Education and training

---

1. Subject: University Complutense Madrid
  - Start date:
  - End date:
  - Qualification: Degree in Pharmacy
  - Organisation:
  - Country: Spain
2. Subject: University Sevilla
  - Start date:
  - End date:
  - Qualification: MSc in Safety Pharmacology
  - Organisation:
  - Country: Spain
3. Subject: University Complutense Madrid
  - Start date:
  - End date:
  - Qualification: PhD in Pharmacy
  - Organisation: Thesis Director: Professor Cesar Nombela Cano
  - Country: Spain
4. Subject: University Complutense, Madrid
  - Start date:
  - End date:
  - Qualification: Pharmacist specialist in Analysis and Control of Medicines and Drugs
  - Organisation:
  - Country: Spain

### Additional information

---

#### Publications

1. Sturm, A.; Vos, M.; Henderson, R.; Eldering, M; Koolen, K; Sheshachalam, A.; Fabia, G.; Samby, K.; Herreros, E.; Dechering, K. (2021). "Barcoded Asaia bacteria enable mosquito in vivo screens and identify novel systemic insecticides and inhibitors of malaria transmission". *PLoS Biology*, 19 (12) e3001426. 2. Miguel\_Blanco, C., J. M. Murithi, E. D. Benavente, F. Angrisano, K. A. Sala, D. A. van Schalkwyk, M. Vanaerschot, F. Schwach, M. J. Fuchter, O. Billker, C. J. Sutherland, S. G. Campino, T. G. Clark, A. M. Blagborough, D. A. Fidock, E. Herreros, F. J. Gamo, J. Baum and M. J. Delves (2021). "The antimalarial efficacy and mechanism of resistance of the novel chemotype DDD01034957." *Scientific Reports* 11(1): 1888. 3. Peric M., Pesi D., Alihodzi S., Fjdeti A., Herreros E et al (2021). "A novel class of fast acting antimalarial agents: substituted 15\_membered azalides". *British Journal of Pharmacology*: 178:363-377. DOI: 10.1111/bph.15292 4. Harupa, A; de las Heras, L; Colmenarejo, G; Lyons\_Abbot, S; Reers, A; Caballero Hernandez, I., Chung, CW; Charter, D, Myler, PJ., Fernandez R., Calderon, F., Palomo S, Rodriguez B, Berlanga M, Herreros E, Staker BL, Fernandez\_Alvaro E and Kaushansky A. (2020).

"Identification of selective inhibitors of Plasmodium N-myristoyltransferase by high-throughput screening". *J Med Chem* 23, 63(2): 591-600. 5. Lozano S., Gamallo P., González Cortés C., Presa Matilla JL, Fairhurst R., Herreros E., et al (2018) "Gametocytes from K13-propeller mutant Plasmodium falciparum clinical isolates demonstrate reduced susceptibility to dihydroartemisinin in the male gamete exflagellation inhibition assay" *Antimicrobial Agents Chemotherapy*. Sep 17. AAC00012\_18. AAC.01426\_18 6. Brunschwig C, Lawrence N, Taylor D, Abay E, Njoroge M, Basarab GS, Le Manach C, Paquet T, González Cabrera D, Nchinda AT, de Kock C, Wiesner L, Denti P, Waterson D, Blasco B, Leroy D, Witty MJ, Donini C, Duffy J, Wittlin S, White KL, Charman SA, Jiménez Díaz MB, Angulo Barturen I, Herreros E, et al (2018). "UCT943, a next generation Plasmodium falciparum PI4K inhibitor preclinical candidate for the treatment of malaria". *Antimicrobial Agents Chemotherapy*. June 25. AAC00012\_18 7. Van der Watt ME, Reader J, Churchyard A, Nondaba SH, Lauterbach SB, Niemand J, Abayomi S, van Biljon RA, Connacher JJ, Van Wyk RDJ, Le Manach C, Paquet T, González Cabrera D, Brunschwig C, Theron A, Lozano Arias S, Rodrigues JFI, Herreros E, et al, (2018). "Potent Plasmodium falciparum gametocytocidal compounds identified by exploring the kinase inhibitor chemical space for dual active antimalarials". *J Antimicrob Chemother*. Feb 6. doi: 10.1093/jac/dky008. 8. Miguel Blanco C., Molina I, Bardera AI, Diaz B, de las Heras L, Lozano S, Gonzalez C, Rodriuges J, Delves MJ, Ruecker A, Colmenarejo G, Viera S, Martinez-Martinez MS, Fernandez E, Baum J, Sinden RE, Herreros E. (2017). "Hundreds of dual-stage antimalarial molecules discovered by a functional gametocyte screen". *Nature Commun* 8, 15160, doi:10.1038/ncomms15160 9. O'Neill PM, Amewu RK, Charman SA, Sabbani S, Gnadig NF, Straimer J, Fidock DA, Shore ER, Roberts NL, Wong MH, Hong WD, Pithathala C, Riley C, Murphy B, Aljayoussi G, Gamo FJ, Sanz L, Rodrigues J, Cortes CG, Herreros E, et al. (2017). "A tetraoxane-based antimalarial drug that overcomes pfK13\_C580Y dependent artemisinin resistance". *Nature Commun* 8, 15159 10. Bahamontes\_Rosa N, Gomez Lorenzo MG, Lelievre J, Rodriguez Alejandro A, Almela MJ, Lozano S, Herreros E, Gamo FJ. (2016). "A novel validated assay to support the discovery of new antimalarial gametocytocidal agents" *Malaria J*. 15 (1):385 11. Penna Coutino J, Almela MJ, Miguel Blanco C, Herreros E, et al. (2016) "Transmission blocking Potential of MEFAS, A hybrid compound derived from Artesunate and Mefloquine". *Antimicrob Agents Chemother* 60 (5), 3145-7 12. Almela, M. J., Lozano, S., Lelievre, J. Colmenarejo G, Coteron JM, Rodrigues J, Gonzalez C, Herreros E. (2015). "A new set of chemical starting points with Plasmodium falciparum transmission blocking potential for antimalarial drug discovery". *PLoS One* 10, e0135139, doi:10.1371/journal.pone.0135139 13. Miguel Blanco, C., Lelievre, J., Delves, M. J., Bardera AI, Presa JL, Lopez Barragan MJ, Ruecker A, Marques S, Sinden R, E. Herreros E. (2015). "Imaging-based high-throughput screening assay to identify new molecules with transmission blocking potential against Plasmodium falciparum female gamete formation". *Antimicrob Agents Chemother* 59, 3298-3305 14. Fernandez Becerra C, Lelievre J, Ferrer M, Anton N, Thomson R, Peligero C, Almela MJ, Lacerda MV, Herreros E, Del Portillo HA. (2013). "Red Blood Cells derived from peripheral blood and bone marrow CD34+ human haematopoietic stem cells are permissive to Plasmodium parasites infection" *Mem Inst Oswaldo Cruz* Sep; 108(6):801-3 15. Delves, M. J., Ruecker, A., Straschil, U, Lelievre J, Marques S, Lopez Barragan MJ, Herreros E, Sinden RE. (2013). "Male and female Plasmodium falciparum mature gametocytes show different responses to antimalarial drugs". *Antimicrob Agents Chemother* 57, 3268-3274, doi:10.1128/aac.00325\_13 16. Nilsen A, LaCrue AN, White KI, Forquer IP, Cross RM, Marfurt J, Mather MW, Delves MJ, Shackelford DM, Saenz FE, Morrisey JM, Sreuten J, Mutka T, Li Y, Wirjanata G, Ryan E, Duffy S, Kelly JX, Sebayang BF, Zeeman AM, Noviyanti R, Sinden RE, Kocken CHM, Price RN, Avery VM, Angulo Barturen I, Jimenez Diaz MB, Ferrer S, Herreros E, et al. "Quinolone-3-diarylethers: a new class of antimalarial drug". (2013) *Science Translational Medicine*, Mar 20;5(177):177ra37 17. Lelievre, J., Almela M.J., Lozano, S., Miguel, C, Franco V., Leroy D. and Herreros E. "Activity of clinically relevant antimalarial drugs on Plasmodium falciparum mature gametocytes in an ATP bioluminescence assay". *PLOS ONE* (2012), 7, e35019 18. Roncales, M. Vidal\_Mas, J., Leroy, D. and Herreros E. "Comparison and optimization of different methods for the in vitro production of Plasmodium falciparum gametocytes. *J. Par. Res.* (2012), ID 927148 19. Bueno J.M., Herreros E., Angulo Barturen I., Ferrer S., Fiandor J.M., Gamo F.J., Gargallo-Viola D., Derimanov G. "Exploration of 4(1H) Pyridones as a novel family of potent antimalarial inhibitors of the Plasmodial Cytochrome bc1". *Future Med Chem* (2012), 4 (18): 2311-23 20. Pescic, D.; Starcevic, K.; Toplak, A.; Herreros, E.; et al. "Design, Synthesis, and in vitro Activity of Novel 2'-O-Substituted 15-Membered Azalides". *Journal of Medicinal Chemistry* (2012), 55(7), 3216-3227. 21. Starcevic, K.; Pescic, D.; Toplak, A.; Landek, G.; Alhodzic, S.; Herreros, E.; et al. "Novel hybrid molecules based on 15-membered azalide as potential antimalarial agents". *European Journal of Medicinal Chemistry* (2012), 49, 365-378. 22. Bueno, J.M., Manzano, P., Garcia, M. C.; Chicharro, J, Puente, M.; Lorenzo, M.; Garcia, A.; Ferrer, S.; Gomez, R.; Fraile M, Herreros E. et al. "Potent antimalarial 4-pyridones with improved physicochemical properties". *Bioorganic & Medicinal Chemistry Letters* (2011), 21(18), 5214-5218. 23. Sanz L, Jiménez Díaz MB, Crespo B, C. De Cozar, Almela M, Angulo Barturen I, Castañeda P, Ibañez J, Fernández E, Ferrer S, E. Herreros, S. Lozano, M. Martínez, L. Rueda, J. Burrows, J. García Bustos, and FJ Gamo Benito. "Cyclopropyl Carboxamides a Novel Chemical Class of Antimalarial Agents Identified in a Phenotypic Screen". *Antimicrobial agents and chemotherapy* (2011), 55(12), 5740-5 24. Aide, P., C.Dobano, J.Sacarlal, J.J.Aponte, I.Mandamando, C.Guinovart, Q.Bassat, M.Renon, L.Puyol, E.Macete, E.Herreros, A.Leach, M.C.Dubois, M.A.Demotte, M.Lievens, J.Vekemans, C.Loucq, W.R.Ballou, J.Cohen, and P.L.Alonso. Four year immunogenicity of the RTS,S/AS02(A) malaria vaccine in Mozambican children during a phase IIb trial. *Vaccine* (2011), 29(35), 6059-67 25. Almela MJ, Torres P, Lozano S. Herreros E. "Characterization of the phospholipidogenic potential of 4 (1H-Pyridones)" *Toxicology in vitro*. 2009, 23 (8) 1528-1534. 26. Vericat J.A., Herreros E and A. Romero Vidal. "Alternative techniques in Pharmacology and Toxicology". In *Science and Technology of the Laboratory Animal*. 2008. pag 318-342. 27. Ferrer J, Del Rosal M, Vidal J, Prats C, Valls J, Herreros E, Lopez D, Gargallo D. 2008. Effect of the haematocrit layer geometry on Plasmodium falciparum static thin layer. *Malaria Journal*, 7: 203. 28. Angulo, I, Jimenez Diaz, MB, Mulet T, Rullas J., Herreros E., Ferrer S, Jimenez E, Mendoza A, Regadera J, Rosenthal PJ, Barthurst I, Pompilano DL, Gomez de las Heras F, Gargallo D. 2008. A murine model of falciparum malaria by in vivo selection of competent strains in non-myelodepleted mice engrafted with human erythrocytes. *PLoS One* 3 (5): e2252 29. C.L. Yeates, J.F. Batchelor, E.C. Capon, N.J. Cheesman, M. Fry, A.T. Hudson, M. Pudney, H. Trimming, J. Woolven, J.M. Bueno, J. Chicharro, E. Fernández, J.M. Fiandor, D. Gargallo-Viola, F. Gómez de las Heras, E. Herreros, and M. L. León. 2008. "Synthesis and Structure-Activity Relationships of 4-Pyridones as Potential Antimalarials". *Journal of Medicinal Chemistry*. May 8, 51(9):2845-52 30. Ferrer J., Vidal J., Prats C, Valls J, Herreros E., Lopez D, Giro A, Gargallo D. 2007. "Individual based model and simulation of Plasmodium falciparum infected erythrocyte in vitro cultures." *Journal of Theoretical Biology* 248(3): 448-59. 31. Rosello A., S. Bertini, A. Lapucci, M. Macchia, A. Martinelli, S. Rapposelli, E. Herreros, and B. Macchia. 2002. Synthesis, antifungal activity and molecular modeling studies of new inverted oxime ethers of oxiconazole. *J. Med. Chem.* 45: 4903-4912. 32. Evans S. M, A. Casartelli, E. Herreros, D. Minnick, C. Day, E. George and C. Westmoreland. 2001. Development of a high throughput in vitro toxicity screen predictive of high acute in vivo toxic potential. 2001. *Toxicology in vitro*. 15:407-412. 33. Herreros E., M. J. Almela, S. Lozano, F. Gómez de la Heras and D. Gargallo-Viola. 2001. Antifungal activities and cytotoxicity studies of six new azasordarins. *Antimicrob. Agents Chemother.* 45:3132-3139. 34. Aviles P., E. M. Aliouat, A. Martinez, E. Dei-Cas, E. Herreros, L. Dujardin, and D. Gargallo-Viola. 2000. In vitro pharmacodynamic parameters of sordarin derivatives in comparison with marketed compounds against P. carinii isolated from rats. *Antimicrob. Agents Chemother.* 44:1284-1290. 35. Herreros E., C. M. Martinez, M. J. Almela, M. S. Marriotti, F. Gómez de la Heras and D. Gargallo-Viola. 1998. Sordarins: In Vitro Activities of New Antifungal Derivatives against Pathogenic Yeasts, Pneumocystis carinii, and Filamentous Fungi. *Antimicrob. Agents Chemother.* 42:2863-2869. 36. Brun Pascaud M., E. Herreros, E.M. Aliouat, E. Dei-Cas. 1998. Evaluation of drug efficacy by using animal models or in vitro systems. *FEMS Immunol. Med. Microbiol.* 22:173-179. 37. Herreros E., M. J. Almela, M. Martinez, S. Lozano, H. Jackson, E. M. Aliouat, and D. Gargallo-Viola. 1997. Microplate assays for in vitro evaluation of anti-Pneumocystis drugs. *J. Euk. Microbiol.* 44:435-445. 38. D. Gargallo, E. Herreros, A. Martinez, H. C. Jackson, J. Comley, E. McKilligin, P. J. Morley, R. Bishop. 1996. The members of the European Concerted Action on Pneumocystis carinii. In vitro systems in Pneumocystis research. *Parasitol. Today* 12:245-249. 39. Herreros E., Garcia-Saez MI., Nombela C., Sanchez M. 1992. A reorganised Candida albicans DNA sequence promoting homologous non-integrative genetic transformation. *Mol. Microbiology* 23: 3567-3574. 40. Ogawa H., Y. Nozawa, V. Rojanavich, R. Tsuboi, T. Yoshiike, Y. Banno, M. Takahashi, C. Nombela, E. Herreros, M.I. García-Saez, A. I. Santos and M. Sánchez. 1992. Fungal enzymes in the pathogenesis of fungal infections. *J. Medical and Veterinary Mycology* 30: 189-196. 41. Nombela C., J. Pla, E. Herreros, C. Gil, M. Molina and M. Sánchez. 1992. "Novel targets for antifungal drugs". In "New Strategies in Fungal Disease", J. E. Bennett, R. J. Hay and P. K. Peterson (ed) , pp 117-129.

## Projects

\_Bill and Melinda Gates Foundation (Global Health Grant nº OPP1043501), USA. Discovery of new antimalarials with transmission-blocking activity (2011-2017) \_Wellcome Trust (UK) (360G\_Wellcome\_100194Z12Z). Seeding Drug

Discovery award. New treatments for diseases of the developing world: TB, malaria, Leishmaniasis and sleeping sickness (2011\_2017). \_PreDICT\_TB IMI, call 3, (EU), "Model\_based preclinical development of anti\_tuberculosis drug combinations". (2012\_2017) \_Medicines for Malaria Venture. Desing and implementation of an insectary to identify new antimalarials with transmission\_blocking activity (2011\_2017) \_European Concerted Action BIOMED\_1. Pneumocystis carinii: new therapeutic approaches (BMH\_1 CT94 PL1118) (1994\_1997) \_European Committee on Antibiotic Susceptibility Testing (EUCAST). Subcommittee of antifungal agents. (1993\_1995)

#### Memberships

American Society of Tropical Medicine and Hygiene (ASTMH) Spanish Society of Microbiology (SEM) Eurotox

#### Other Relevant Information

Visiting Professor of Microbiology and Parasitology. University Complutense, Madrid, Spain